



322509

ADMINISTRATIVE
RECORD

FILE PLAN

1.06

LETTER REPORT

TO: Mike Zimmerman, OSC
EPA/ERB - Denver

FROM: Cordel Schmidt
TAT - Region VIII

DATE: April 22, 1993

SUBJECT: Letter Report for the Richardson Flats Tailings Site; TDD
#T08-9210-041

The Ecology and Environment, Inc., Technical Assistance Team (E & E TAT) was tasked by the U.S. Environmental Protection Agency Emergency Response Branch (EPA/ERB) under Technical Direction Document (TDD) number T08-9210-041 to plug and abandon groundwater monitoring well RF-MW-02 at the Richardson Flats Tailings site, located in Park City, Utah. Site operations were performed on April 7, 1993 and were managed by Cordel Schmidt, E & E TAT and attended by Mike Zimmerman and Daryl Murton, both with the EPA/ERB. Ed Osika, Kerry Gee and David Tuesday representing the United Park City Mines Company (UPCM) were also present during operations.

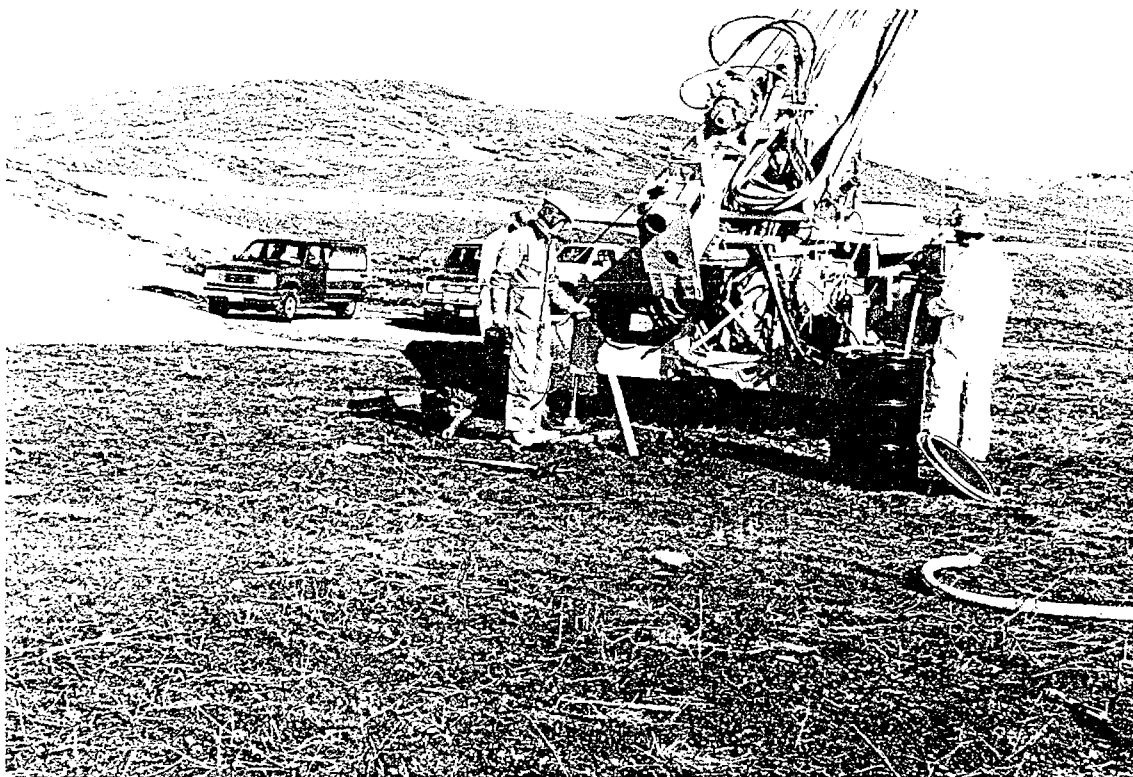
The Boyles Brothers Drilling Company was contracted to perform the plugging operations as they had previously installed the well (RF-MW-02 on June 26, 1992) and were familiar with its construction. A reverse circulation, air rotary, track-mounted drill rig manufactured by the CBC Boyles Company was utilized for site operations. Note that a track-mounted drill rig was selected due to extremely muddy conditions expected at the drill site. An 8-inch "spike" or "stinger" was attached to the downward end of a 5 1/4-inch tricone drill bit in order to ensure that the drilling apparatus did not wander or drill off of the PVC well casing, which had to be removed. All drilling equipment was decontaminated at the Boyles Brothers shop prior to mobilization to the site. The equipment was again decontaminated via a steam cleaner prior to mobilization onto the drill location. Drilling activities were monitored with an organic vapor analyzer (OVA) and are photodocumented in Appendix A.

Plugging operations were performed by first removing the steel protective casing and concrete pad. The 4-inch outside diameter (OD) well borehole was then drilled out by means of a 5 1/4-inch OD drill bit. This ensured that all of the previously introduced material was removed via the larger borehole diameter. All material was removed to a depth of 40 feet below ground surface (bgs). Note that the depth of the monitoring well was 38 feet bgs. PVC casing and screen material was observed to be exiting the borehole as shavings that ranged in size up to one inch in diameter. All material removed from the well was left on-site by permission of Ed Osika, UPCM, who also stated that he would cover the material with clean fill dirt in order to eliminate any possible exposure at the ground surface.

A delay was encountered when upon pulling the drill string from the hole after total depth (TD) was reached, the hole had sloughed at approximately 15 feet bgs. A decision was made to insert casing into the hole in order to seal off the borehole and blow out debris with the drill rod as the casing was simultaneously lowered to TD. After some difficulty, a depth of 38.75 feet bgs was reached with the casing. The well was then plugged by introducing 3/8-inch bentonite chips into the cased hole. As the casing was removed the bentonite chips were allowed to fall into the borehole, thus ensuring that the hole would not slough again. The bentonite chips were hydrated with distilled water as they were introduced into the borehole.

A Well Drillers Report and abandonment log on file with the State of Utah are included in Appendix B, as well as the original Well Completion Report and drill log constructed when the monitoring well RF-MW-02 was installed.

APPENDIX A
PHOTODOCUMENTATION



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: TAT monitoring operations with an OVA at well RF-MW-02

Location: Richardson Flats Tailings Site

City: Park City County: Summit State: UT

Date: April 7, 1993 Time: _____ Hours

Photographer: Mike Zimmerman

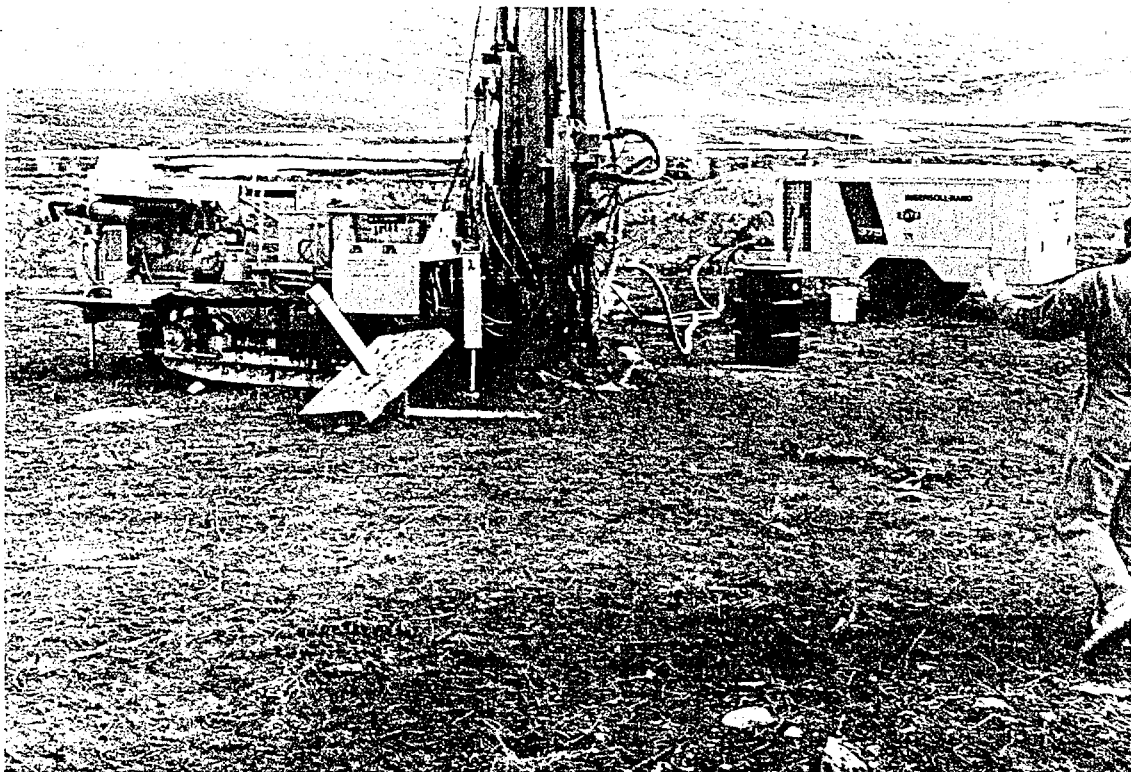
Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9212-008

Witness: Cordel Schmidt

Process: C-41

Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: Drilling out well RF-MW-02; note material blown from well lying
about borehole

Location: Richardson Flats Tailings Site

City: Park City County: Summit State: UT

Date: April 7, 1993 Time: _____ Hours

Photographer: Mike Zimmerman

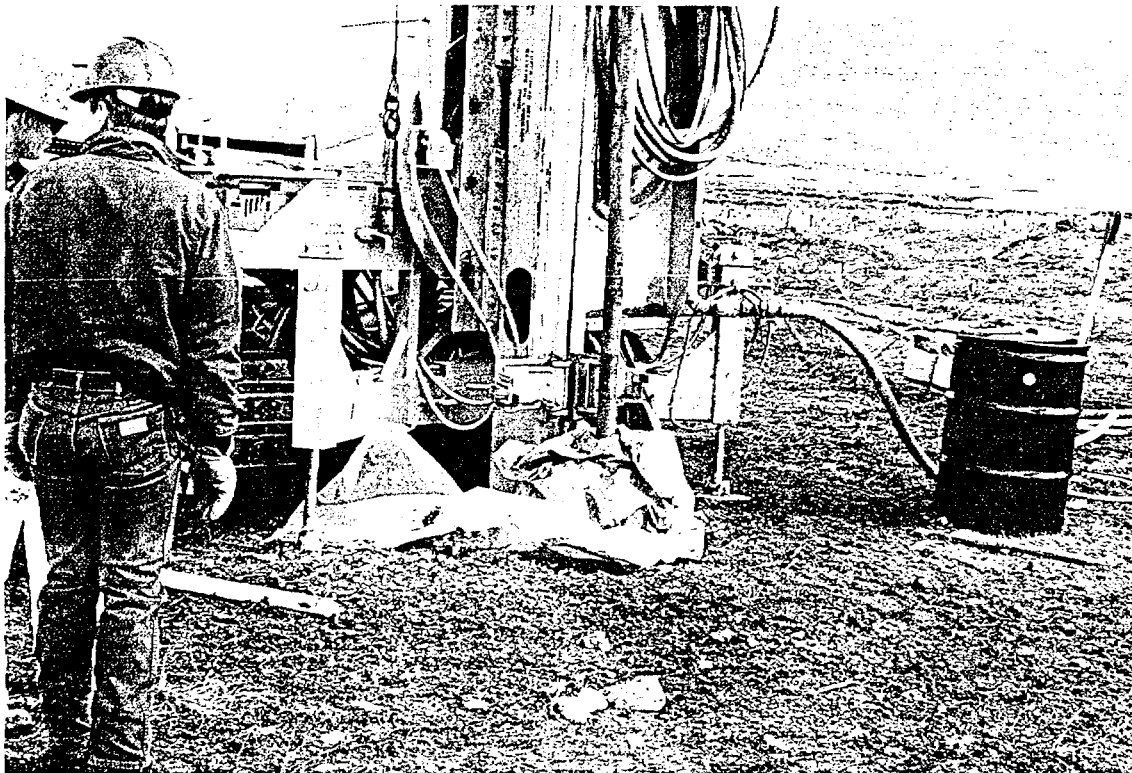
Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9212-008

Witness: Cordel Schmidt

Process: C-41

Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: Drilling out well RF-MW-02; note white PVC shavings on ground

Location: Richardson Flats Tailings Site

City: Park City County: Summit State: UT

Date: April 7, 1993 Time: _____ Hours

Photographer: Cordel Schmidt

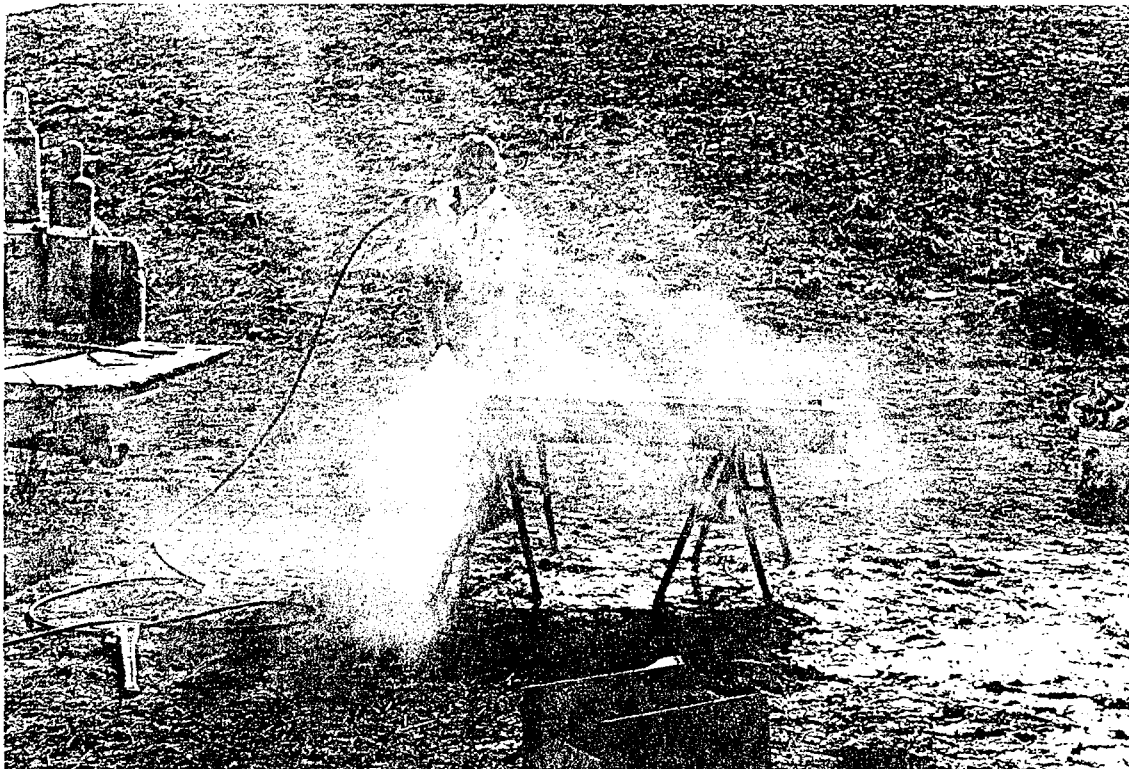
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File: T08-9212-008

Witness: Mike Zimmerman

Process: C-41

Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: Decontaminating drilling equipment at well RF-MW-02

Location: Richardson Flats Tailings Site

City: Park City County: Summit State: UT

Date: April 7, 1993 Time: _____ Hours

Photographer: Cordel Schmidt

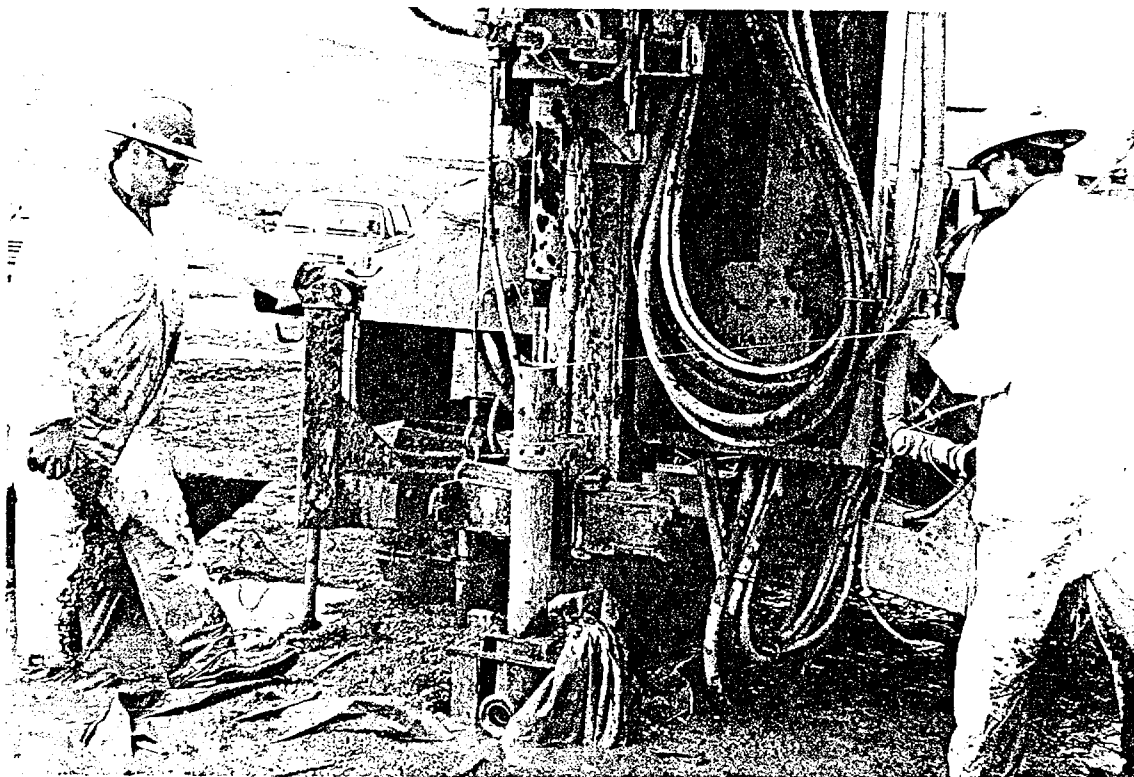
Film: Kodak ASA: 200 Location of Negative: EPA-ERB

File: T08-9212-008

Witness: Ed Osika

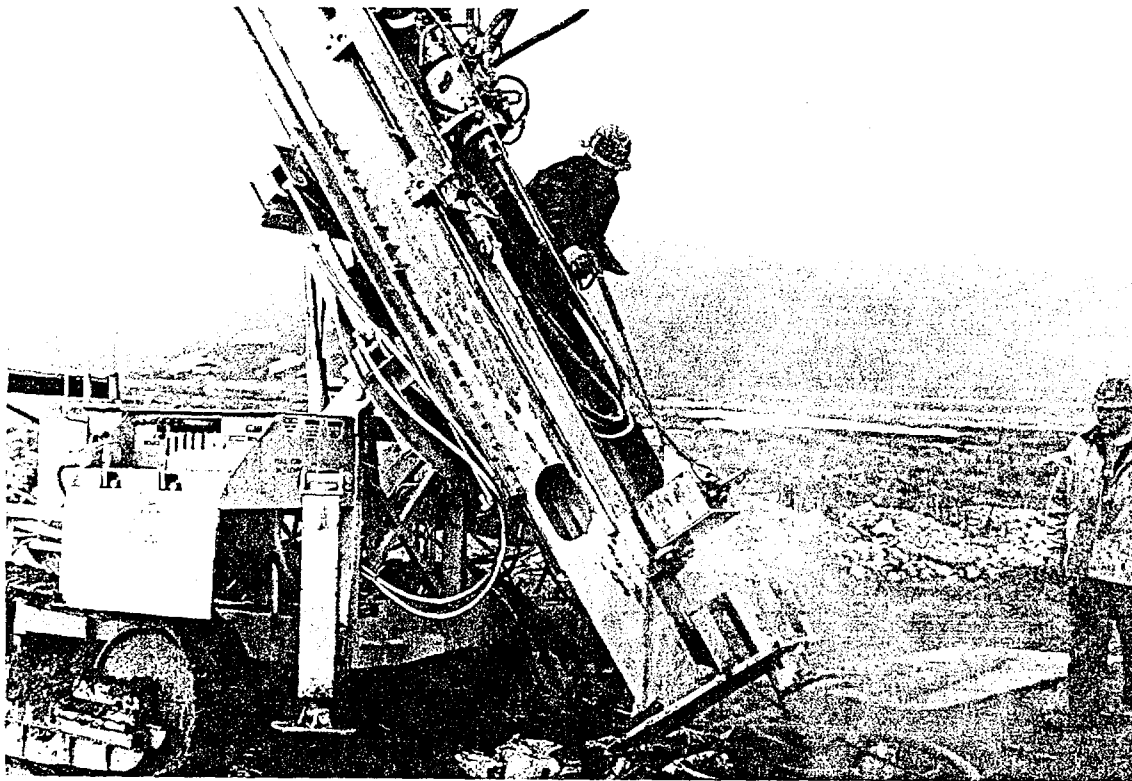
Process: C-41

Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: Measuring depth of borehole and/or bentonite depths at well
RF-MW-02
Location: Richardson Flats Tailings Site
City: Park City County: Summit State: UT
Date: April 7, 1993 Time: _____ Hours
Photographer: Cordel Schmidt
Film: Kodak ASA: 200 Location of Negative: EPA-ERB
File: T08-9212-008
Witness: Ed Osika
Process: C-41
Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: Decontaminating drill rig prior to demobilization at well
RF-MW-02
Location: Richardson Flats Tailings Site
City: Park City County: Summit State: UT
Date: April 7, 1993 Time: _____ Hours
Photographer: Cordel Schmidt
Film: Kodak ASA: 200 Location of Negative: EPA-ERB
File: T08-9212-008
Witness: Ed Osika
Process: C-41
Paper: Fujicolor



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: View of drill site after completion; note borehole filled to
ground surface with bentonite at left center

Location: Richardson Flats Tailings Site

City: Park City County: Summit State: UT
Date: April 7, 1993 Time: Hours
Photographer: Cordel Schmidt
Film: Kodak ASA: 200 Location of Negative: EPA-ERB
File: T08-9212-008
Witness: Ed Osika
Process: C-41
Paper: Fujicolor

APPENDIX B
WELL DRILLERS REPORT

**State of Utah
Division of Water Rights**

For additional space, use "Additional Well Data Form" and attach

Well Identification

92-35-09 mw-

RmFW-02

Owner

Note any changes

United States Environ. Protection Agency
c/o - Ecology and Environment
1776 S. Jackson St.
Denver, Colo. 80201

Contact Person/Engineer:

Cordell Schmitz

Well Location

Note any changes

Section 2, Township 1 S, Range 4 E S18m
Richeson Plots - Park City, Utah
Park City mines

Location Description: (address, proximity to buildings, landmarks, ground elevation, local well #)

Drillers Activity

Start Date:

4/7/93

Completion Date:

4/7/93

Check all that apply:

☐ New ☐ Repair ☐ Deepen ☒ Abandon ☐ Replace ☐ Public Nature of Use:

DEPTH (feet) FROM TO		BOREHOLE DIAMETER (in)	DRILLING METHOD	DRILLING FLUID
0	39	5 1/4	Air-Rotary	Air
Re-drilled on well # RmFW02 so hole could be abandoned.				

Well Log		W A T E R	P E R M E A B L E	UNCONSOLIDATED							CONSOLIDATED		ROCK TYPE	COLOR	DESCRIPTIONS AND REMARKS (include comments on water quality if known.)
DEPTH (feet) FROM	TO			C L A Y	S I L T	S S A N D	G R A V E L	C O B B L E S	B L O C K S	O T H E R					
0	24														Drilled out Placed Cement from hole
24	26														Drilled out bent. seal
26	39														Drilled out sand pack

Static Water Level

Date _____ Water Level _____ feet Flowing? ☐ Yes ☐ No

Method of Water Level Measurement _____ If Flowing, Capped Pressure _____ PSI

Point to Which Water Level Measurement was Referenced _____

Height of Water Level reference point above ground surface _____ feet Temperature _____ ☐ °C ☐ °F

Well Log

Construction Information

DEPTH (feet)		CASING			DEPTH (feet)		SCREEN <input type="checkbox"/>	PERFORATIONS <input type="checkbox"/>	
FROM	TO	CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)	FROM	TO	SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)

Well Head Configuration: _____ Access Port Provided? ☐ Yes ☐ No

Casing Joint Type: _____ Perforator Used: _____

DEPTH (feet)		FILTER PACK / GROUT / PACKER / <u>ABANDONMENT MATERIAL</u>		
FROM	TO	ANNULAR MATERIAL, ABANDONMENT MATERIAL and/or PACKER DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
0	39	-3/8" bentonite well plug 1/4" bentonite pellets	700 lbs 50 lbs	-20 gallons of D.I. water

Well Development / Pump or Bail Tests

Date	Method	Yield	Units		DRAWDOWN (ft)	TIME PUMPED (hrs & min)
			Check One	GPM CFS		

Pump (Permanent)

Pump Description: _____ Horsepower: _____ Pump Intake Depth: _____ feet

Approximate maximum pumping rate: _____ Well disinfected upon completion? ☐ Yes ☐ No

Comments Description of construction activity, additional materials used, problems encountered, extraordinary circumstances, abandonment / procedures. Use additional well data form for more space.

Drilled out old well using a 5 1/4" bit with guide stringer. Re-Drilled casing to bottom of hole. Added well plug (bent) thru casing and withdrew casing keeping bentonite in casing as casing was pulled. Added water as bent. was added

Well Driller Statement This well was drilled or abandoned under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name Boyles Bros. Drilling Co.

License No. 215

(Person, Firm, or Corporation - Print or Type)

Signature

[Signature]
(Licensed Well Driller)

Date

4/10/93

WELL/PIEZOMETER COMPLETION DIAGRAM

Project RICHARDSON FLATS TAILINGS SITE
 Location PARK CITY, SUMMIT COUNTY, UTAH
 Geologist T. SANDERS
 Depth to water 26.3 feet (G.L.)

CD No. 708-9204-15
 Well Number RF-MW-02
 Date(s) of Installation 6/24-26/02
 Elevation from measuring point GROUND SURFACE

DRILLING SUMMARY:

Driller BOYLES BROTHERS DRILLING CO.

Rig type B-53
 Drilling method AIR ROTARY/CASING DRIVE
 Bit(s) HAMMER (ODEX)/TRI-CONE BITS
 Drilling fluid ---

Surface casing ---
 Hollow Stem/Drive Casing I.D. (in.) 4
 Total Depth of Boring (ft.) 39
 Borehole Diameter (in.) 4

WELL DESIGN:

	Above	Below
Completion	Grade	Grade
Basist: Geological Log	X	Geotechnical Log
		Type
Total Depth of Well (ft.)	38	
Casing String(s): Casing	Screen	
+ 1.5 - 28.0	C	-
28.0 - 38.0	S	-

Casing: SCHEDULE 80 PVC, 2" I.D. THREADED WITH FLUSH THREADS

Screen: SCHEDULE 80 PVC, 2" I.D., 0.010 SLOT SIZE WITH BOTTOM CAP

Centralizers

Gravel/Sand Pack 26.0 to 38.0 feet
10-20 MESH COLORADO SILICA SAND

Bentonite Seals: 22.5 to 26.0 feet
 to feet

Bentonite (type) PELLETS 1/2"

Backfill (cuttings) --- to feet

Cement Seal(s) 2.0 to 22.5 feet

0.0 to 2.0 feet

Cement Composition 90% PORTLAND TYPE I-II LOW ALKALI CEMENT 10% BENTONITE, "SAKRETE" CONCRETE MIX TO SURFACE

Protective Casing 2.0 to +1.75 feet

Protective Casing Type 5" NOMINAL DIAMETER STEEL CASING

Other ---

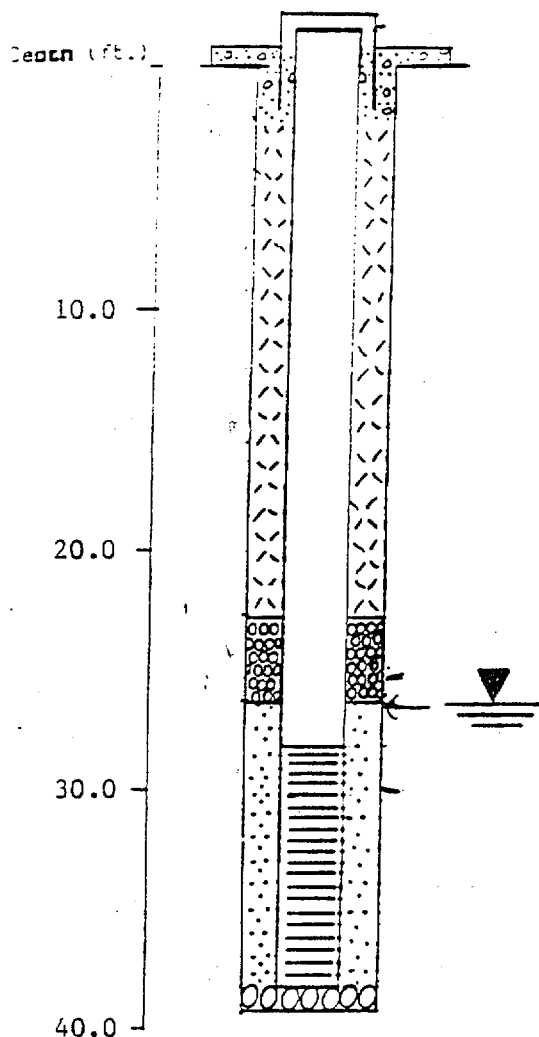
WELL DEVELOPMENT:

Method RAILING - 2 1/2 FT. STAINLESS STEEL BAILER

Duration 1 hrs Estimated production 0.1 gpm






Water Appearance MEDIUM BROWN, TURBID

Remarks: TOTAL DISCHARGE = 12.0 GALLONS







DRILL LOG

PROJECT RICHARDSON FLATS TAILINGS SITE JOB NO. T08-9204-15 DATE 6/24-26/92
 WELL/BORING RF-MW-02 LOCATION PARK CITY, SUMMIT LOGGER T. SANDERS
 DRILL METHOD AIR ROTARY/CASING DRIVE COUNTY, UTAH PAGE 1 OF 2
 WATER LEVEL FIRST ENCOUNTERED N/A FINAL 26.3 FT. ELEV. N/A

DEPTH IN FEET	LITH COL	SAMPLE TYPE IDENT.	MOISTURE CONTENT WATER LEVEL	LITHOLOGIC DESCRIPTION	NOTES
			DRY	Overburden - silt and gravels, dark brown soil, silicic rock fragments	HNU: 0.0 ppm above bkgd. BLOW COUNTS: 19/50/Refusal SAMPLE RECOVERY: 25%
5			DRY	Top Soil/Refuse - dark brown silty soil, wood chips and rock fragments 2-6mm, aromatic Cuttings 5-10 ft. depth: wood, paper pulp, etc.	HNU: 0.0 ppm above bkgd.. BLOW COUNTS: 13/20/27/9 SAMPLE RECOVERY: 5%
10			SL. MOIST	Clay/Refuse - dark brown clay, silicic pebbles, plastic, glass, wood chips	HNU: 0.0 ppm above bkgd.. BLOW COUNTS: 7/6/9/10 SAMPLE RECOVERY: 65%
15			DRY	Refuse - black fibrous material, plastic, paper, charcoal	HNU: 0.5 ppm above bkgd.. BLOW COUNTS: 13/23/21/11 SAMPLE RECOVERY: 20%
20			---	Refuse - wood plug blackened by fire, large silicic rock clast	HNU: 0.0 ppm above bkgd.. BLOW COUNTS: 19/22/7/7 SAMPLE RECOVERY: 5%
DRILL LOG CONTINUED					

DRILL LOG

PROJECT RICHARDSON FLATS TAILINGS SITE CCB NO. 108-9204-15 DATE 6/24-26/92
 WELL/BORING RF-MW-02 (continued) LOCATION PARK CITY, SUMMIT LOGGER T. SANDERS
 DRILL METHOD AIR ROTARY/CASING DRIVE COUNTY, UTAH PAGE 2 OF 2
 WATER LEVEL FIRST ENCOUNTERED N/A FINAL 26.3 FT. ELEV. N/A

DEPTH IN FEET	LITH COL	SAMPLE TYPE IDENT.	MOISTURE CONTENT WATER LEVEL	LITHOLOGIC DESCRIPTION	NOTES
25			MOIST 	Siltv-Clay - black, pebbles, wood, plastic, paper, grading into a reddish/brown clay, 2-6mm pebbles	HNU: 0.0 ppm above bkgd. BLOW COUNTS: 5/6/5/8 SAMPLE RECOVERY: 60% Water @ 26.3 ft.
30			VERY MOIST	Clay - reddish/brown, highly plastic, 2-17mm silicic fragments	HNU: 0.0 ppm above bkgd. BLOW COUNTS: 3/3/8/26 SAMPLE RECOVERY: 85%
35			WET	Clay - red/brown, 10-20mm fragments, grading to dark reddish/brown clay containing lenses of gray quartzite	HNU: 0.0 ppm above bkgd. BLOW COUNTS: 25/18/19/44 SAMPLE RECOVERY: 65%
					TOTAL DEPTH 39.0 ft.